

Appl. No. 10/717,951  
Docket No. XOGN001-02US  
Filed: November 19, 2003

### **Claim Rejections 35 USC § 103**

We believe the above suggested amendments to claim 1 will adequately address the rejections under 35 USC § 102, however we still have obviousness issues as indicated by the Examiner. Should the proposed amendment to claim 1 not address these issues we suggest the following for consideration by the Examiner.

A review of the prior art cited by the Examiner indicates to the inventors that there are features in the application as filed that may further distinguish the present invention from the prior art.

These features are:

Disinfection = pathogen kill and is part of stabilization

Organic oxidation = reduction of volatile solids content = destruction of polysaccharide layers around biosolids and is part of stabilization

### **Disinfection in the present application**

With regard to disinfection as disclosed in the present application:

1) Paragraph 31 refers to Figure 2 and states "...the treated waste stream is concurrently disinfected so that it meets regulatory and industry standards for effluent 218.

2) Paragraph 40 refers to Figure 3 and states "...a disinfection process 260 is either replaced or supplemented by an oxy-hydrogen gas generator GG2 interposed in the flow path of the treated waste stream, between final clarifier 250 and effluent outlet 258".

3) Paragraph 44 refers to Figure 3 and 3B and states "Utilization of an oxyhydrogen gas generator GG4 for stabilization may require a shorter time of residence than required in a conventional stabilization process 274 to kill or render innocuous an effective amount of pathogens".

### **Organic Oxidation in the present application**

With regard to organic oxidation as disclosed in the present application:

1) Paragraph 44 refers to Figure 3 and Fig 3B with regard to feature GG4 and states "...and a 'vector attraction reduction' such as a 38 percent reduction in volatile solids contents." The last sentence in paragraph 44 states that "...utilizing an oxyhydrogen gas generator GG4 have shown that the stabilization and vector attraction (*i.e. volatile solids reduction*) can be met ...."

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2) Paragraph 45 refers to Figure 3 with regard to feature GG4 and states "The oxygen liberated by the gas generator GG4 produces a highly oxidative environment resulting in the oxidation of organic matter, which can, in itself, satisfy stabilization requirements".

3) Paragraph 46 refers to Figure 3 with regard to feature GG5 and states "Gas generator GG5 generates a highly oxidative and elevated temperature regime that tends to destroy polysaccharide layers around biosolids..."

#### **Disinfection & Organic Oxidation in the cited references**

With regard to Mehl, it does not refer to disinfection but does refer to oxidation in the claims. Specifically:

- 1) Column 7 line 72 "contacting said influent in said treating zone with an ozone gas to precipitate said dissolved solids"
- 2) Column 8 line 25 "contacting said influent in said treating zone with an ozone gas to oxidize and precipitate dissolved solids"

In the text Mehl does refer to disinfection at column 2 line 18 "... bubbling ozone through these fluids to assist in flotation of the floc and to kill bacteria in the fluid materials,..."

In all cases however it is clear that this treatment comes from the ozone added externally to the system with no suggestion that the gases generated by electrolysis are responsible for this treatment. To the inventors it is clear from Column 7 where the "OZONE PRODUCTION UNIT" is described that there is no intention to use the gases from electrolysis, as stated in this section "Ozone is produced in the ozone production unit 44 in conventional manner as by passing dry air between electrodes with a high voltage potential". In contrast the proposed amended claim 1 of the present invention makes it clear that oxyhydrogen-rich gas is generated by electrodes submersed in the waste stream.

With regard to Wesley, rather than passing the gasses from electrolysis through the waste stream it utilizes electrolysis to dissociate the entire volume of water into hydrogen and oxygen, combusting them together and then collecting the water, which is the product of combustion.

With regard to Zucker no mention is made of either disinfection or organic oxidation. The process is an agglomeration process for removing colloidal suspensions from a liquid and the gas produced by electrolysis aids in washing off the agglomerated materials from the conductors.

With regard to Witt, there is no mention of disinfection. There is also no direct reference to organic oxidation. That being said in claim 7 Witt in the second paragraph, does state:

"...to subject waste water between said electrodes to electrolysis, thereby breaking down and chemically altering contaminants in the electrolyzed water thereby forming a sedimentable flocculate in the electrolyzed water"

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The inventors are not clear on what this means, but it appears to be focused to producing sediment, which can be separated by gravity as opposed to destroying the contaminant through oxidation.

### **Conclusion**

Thus, from the above analysis, the inventors would suggest amending claim 1 to include either Disinfection or Organic Oxidation if the examiner believes these are warranted and supported, to overcome the rejections under 35 USC § 103. However, the inventors are not of the belief that this is necessary. Rather, they are seeking the advice of the Examiner on what would be required to have this patent application issue and are providing suggestions for discussion.

### **General Comments**

We would also like to discuss how the Examiner would consider system claims, currently 34 and 35 to be acceptable for allowance. Perhaps an amendment to claim 34 to echo the features of claim 1 would be acceptable to the Examiner.